In the Claims:

1. (Currently Amended) A process for the hydroformylation of an optionally substituted ethylenically unsaturated compound by reaction thereof with carbon monoxide and hydrogen in the presence of a catalyst system comprising:

(a) a source of Group VIII metal cations;

(b) a diphosphine ligand having the general formula (I):

$$X^1\text{-}R\text{-}X^2 \qquad (I)$$

wherein X^1 and X^2 each independently represent an optionally substituted cyclic group with at least 5 ring atoms, of which one is a phosphorus atom, and R represents a bivalent optionally substituted cycloalkene bridging group which is connected to each phosphorus atom by a sp^2 hybridized carbon atom;

(c) an acid having a $pK_a < 3$, measured in an aqueous solution at 18 °C, or a salt derived therefrom; and

(d) a source of halide anions.

2. (Currently Amended) The process of claim 1 wherein R is selected from the group consisting of ~~alkene,~~ cycloalkene~~, and aromatic~~ groups~~,~~ wherein the carbon atoms connected to a phosphorus atom are connected via an unsaturated bond to another atom.

Claims 3-4 (Canceled).

5. (Original) The process of claim 1 wherein the bridge in R contains 2 to 6 carbon atoms.

6. (Original) The process of claim 5 wherein the bridge in R contains 2 to 4 carbon atoms.

7. (Previously Presented) The process of claim 1 wherein the bridge in R contains at least 2 sp^2 hybridized carbon atoms.

8. (Currently Amended) The process of claim 1 wherein X^1 ~~and/or~~ and X^2 each independently represent an optionally substituted phospha-bicycloalkyl group with at least 6 ring atoms.

9. (Original) The process of claim 1 wherein X^1 and X^2 have 6 to 12 ring atoms.

10. (Currently Amended) The process of claim 1 wherein the diphosphine ligand (b) is selected from the group consisting of

~~1,2-P,P'bis(9-phosphabicyclononyl) benzene;~~

~~1,2-P,P'bis(9-phosphabicyclononyl) 4-methyl benzene;~~

~~3,4-P,P'bis(9-phosphabicyclononyl) thiophene;~~

1,2-P,P'bis(9-phosphabicyclononyl) cyclopentene; and

1,2-P,P'bis(9-phosphabicyclononyl) cyclohexene.

11. (Currently Amended) The process of claim 10 wherein the diphosphine ligand (b) is ~~selected from the group consisting of~~

~~3,4-P,P'bis(9-phosphabicyclononyl) thiophene; and~~

1,2-P,P'bis(9-phosphabicyclononyl) cyclopentene.

12. (Previously Presented) The process of claim 1 wherein the source of Group VIII metal cations is selected from the group consisting of sources of rhodium, nickel, palladium, and platinum cations.

13. (Previously Presented) The process of claim 12 wherein the source of Group VIII metal cations is selected from the group consisting of sources of palladium, and platinum cations.

14. (Previously Presented) The process of claim 13 wherein the source of Group VIII metal cations is a source of palladium cations.

15. (Original) The process of claim 1 wherein the source of Group VIII metal cations is selected from the group consisting of Pd (II) acetate and Pt (II) acetylacetonate.

16. (Original) The process of claim 1 wherein the ethylenically unsaturated compound has 2 to 40 carbon atoms per molecule.

17. (Previously Presented) The process of claim 16 wherein the ethylenically unsaturated compound is an alkene comprising 4 to 40 carbon atoms.

18. (Previously Presented) The process of claim 17 wherein the ethylenically unsaturated compound is an alkene comprising 8 to 40 carbon atoms.

19. (Original) The process of claim 18 wherein the ethylenically unsaturated compound is an alkene comprising 8 to 25 carbon atoms.

20. (Original) The process of claim 19 wherein the alkenes are octenes in a mixture of octenes, octadienes, methyl-heptadienes, and/or dimethyl hexadienes.

Claims 21-31 (Canceled).